Dwight M. Smith
Research Professor
Professor of Chemistry Emeritus
Chancellor Emeritus
Department of Chemistry and Biochemistry
University of Denver
Denver, Colorado USA 80208

Date: 23 May 2008

To: ~~J~~ 713-221-1212

Attention: Justin Murray

Number of Pages Including Header: 3

Notes/Special Instructions:

Justin -

Accompanying is the signed declaration.

Dwight

Phone: 303-871-2938
FAX: 303-871-2932
Email: dwismith@du.edu

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of: **Smith, Dwight M.**	§	Group Art Unit: **1793**
Serial No.: **10/768,613**	§	Examiner: Zheng, Lois L.
Filed: **January 30, 2004**	§	
Title: **Method and Composition for Creation of Conversion Surface**	§	Docket No.: 27435.002

DECLARATION OF DR. DWIGHT SMITH REGARDING INOPERABILITY OF CITED REFERENCE IN SUPPORT OF RESPONSE TO OFFICE ACTION

I, Dr. Dwight Smith, state the following, of which I have personal knowledge:

1. I am a professor at the University of Denver and act as a consultant to EnviroFuels, LLC ("EnviroFuels") and I have a mailing address of Department of Chemistry and Biochemistry, F.W. Olin Hall, Room 202, 2190 E. Iliff Ave. Denver CO 80208. I have been a consultant for EnviroFuels since at least 2002.

2. I have reviewed the disclosure of WO 98/08919 ("Kalota") and prepared the preferred composition as described in Kalota. The preferred composition tested contained an alkali metal orthophosphate, K_2HPO_4, a polycarboxylic acid/carboxylate, adipic acid, and an amide, acrylamide. The concentrations were adjusted to fall in the mid-range claimed by Kalota et al. (10% w/w adipic acid, 10% w/w acrylamide, K_2HPO_4 to provide 3000 ppm P, in 480 mL water solution). The pH was adjusted to neutrality with KOH.

3. The composition of Kalota and a solution made in accordance with an embodiment of the present invention ("EF200") were tested on 1018 steel cylinders that were furnished by Advanced Machining, Inc., of Longmont, Colorado. The steel cylinders were covered with their respective solutions by immersion at 180 °F for a 24 hour period. Following a rinse with pure acetone, the treated cylinders, along with an untreated steel cylinder (as a control) were analyzed with surface analytical instrumentation at Rocky Mountain Laboratories, Golden, Colorado.

4. The treated surface of each cylinder was analyzed by optical microscopy and scanning electron microscopy (SEM) fitted with energy dispersive Xray spectroscopy (EDS).

5. Optical microscopy showed that the steel surface treated with the Kalota solution showed signs of a thick layer of oxidation, indicating that extensive reactions took place on the surface of the steel cylinder. The steel surface treated with EF200 had a discernible but thin conversion surface; with polish marks still clearly visible.

6. The SEM/EDS results on the control steel surface were obtained with 20kV Xray beam energy which yields spectra by radiation emitted from about 1μ (10,000 angstroms) depth below the surface. The steel control reveals primarily Fe (98%) and small amounts of Mn, Mo and Si. It is this background to which the steel cylinders treated with each of the solutions are compared. A homogeneous steel conversion surface has been produced by the EF200 treatment. The EDS spectrum still shows considerable Fe (53 atom %) and measurable amounts of P (0.7 %), K (0.4 %), O (6.6 %), and considerable C (38 %). This conversion surface appears to be much less than 1μ because of the appearance of significant Fe. In contrast, the steel surface treated with the Kalota solution can be seen to be heavily oxidized and reacted with phosphate. This is evident both from the SEM micrograph and the EDS spectrum. Large amounts of P, K and O, which reflect an extensive surface reaction rather than a conversion surface as with the EF200, are evident in the EDS spectrum.

7. Under the conditions described above, a solution made in accordance with the teachings of Kalota and contacted with a steel surface would result in the steel surface undergoing heavy oxidation. This oxidation layer is not consistent with a conversion surface. Therefore, the results indicate that the preferred solution of Kalota is incapable of forming a conversion surface on steel. The spectra and analytical data are attached.

I hereby declare under penalty of perjury that the foregoing is true and correct.

Date: 22 May 2008

Dwight M. Smith